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July 31, 2002

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FEDERAL COMMUNICATIONS COMMISSION
 OFFICE OF THE SECRETARY

VIA MESSENGER

Ms. Marlene H. Dortch, Secretary
 Federal Communications Commission
 Office of the Secretary
 236 Massachusetts Avenue, N.E., Suite 110
 Washington, D.C. 20002

Jeffrey E. Rummel
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RE: Delphi Automotive Systems Corporation
Opposition to Petition for Reconsideration of Multispectral Solutions, Inc.
ET Docket 98-153

Dear Ms. Dortch:

On behalf of Delphi Automotive Systems Corporation ("Delphi"), undersigned counsel hereby submits an original and eleven (11) copies of the instant Opposition to the "Petition For Reconsideration" filed by Multispectral Solutions, Inc. in the above-referenced proceeding.

Respectfully submitted,

Alan G. Fishel
 Jeffrey E. Rummel

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**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

JUL 31 2002

**FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY**

In the Matter of)
)
Revision of Part 15 of the Commission's Rules) ET Docket 98-153
Regarding Ultra-Wideband Transmission)
Systems)

**DELPHI AUTOMOTIVE SYSTEMS CORPORATION'S OPPOSITION TO
MULTISPECTRAL SOLUTION, INC'S PETITION FOR RECONSIDERATION**

INTRODUCTION

Delphi Automotive Systems Corporation ("Delphi"), by its undersigned attorneys, hereby submits this opposition to the Petition for Reconsideration filed by Multispectral Solutions, Inc. ("MSSI") on or about June 14, 2002 in the above captioned proceeding (the "Petition for Reconsideration").

DISCUSSION

In the Petition for Reconsideration, MSSI requests that the Commission reconsider its holding on numerous matters. As to the issues raised in Section V of the Petition for Reconsideration, Delphi opposes MSSI's request for reconsideration, at least to the extent that MSSI's request would impact upon the FCC's rulings in this proceeding relating to vehicular radar and Delphi's employment of its radar systems.¹

**I. MSSI Erroneously Claims that the Record Does not
Support the Commission's Decision Regarding
Vehicular Radar Utilizing the PN DS BPSK Non-Pulsed Waveform**

In Section V of the Petition for Reconsideration, MSSI claims that the Commission erred in failing to exclude from the definition of UWB non-pulsed systems,

such as biphas-modulated, high data rate systems which utilize direct sequence techniques (i.e. high-speed chipping sequences). MSSSI claims that the Commission erred in including these types of systems in the definition of UWB because, according to MSSSI, (i) the record contains no discussion of the rationale for permitting such systems; (ii) permitting such systems is inconsistent with the record; and (iii) there was no opportunity to comment on, or to test, such systems in the proceeding. Petition for Reconsideration at 12-13.

As to each of these three contentions, nothing could be further from the truth -- at least as far as vehicular radar utilizing the PN DS BPSK non-pulsed waveform is concerned. As shown below, as to vehicular radar utilizing the PN DS BPSK non-pulsed waveform, the record fully supports the Commission's decision.²

As an initial matter, it is not clear whether it is MSSSI's intent to have the Commission reverse its decision as to vehicular radar utilizing the PN DS BPSK non-pulsed waveform. The devices MSSSI provides to its customers appear to operate at center frequencies far below those authorized for vehicular radar as UWB. MSSSI appears to provide devices that operate at center frequencies of approximately 12 GHz and below. Vehicular radar, of course, has only been authorized as UWB only between 22 and 29 GHz. Moreover, while it is not completely clear from MSSSI's filings, communications services, and not vehicular radar systems, appear to be the type of

¹ As to matters raised by MSSSI in the portions of the Petition for Reconsideration other than Section V, Delphi neither supports nor opposes the Petition for Reconsideration.

² As demonstrated in numerous filings in this proceeding, Delphi employs a PN DS BPSK non-pulsed waveform in connection with various vehicular radar applications. Accordingly, the instant pleading addresses the Petition for Reconsideration only in so far as it seeks to exclude such waveform from the Commission's UWB rules.

services causing MSSSI the most concern. Regardless, however, of MSSSI's intentions, the fact remains that vehicular radar utilizing the PN DS BPSK non-pulsed waveform employs high-speed chipping sequences (and might be characterized as a high data rate system). Therefore, if the Commission adopted MSSSI's broadbrush approach and overreaching language as proposed, it would hinder UWB development and public use without the benefit of reduced potential interference to existing services.

As to vehicular radar utilizing the PN DS BPSK non-pulsed waveform, MSSSI is, as a matter of record, wrong when it claims that the record contains no discussion of the rationale for permitting non-pulsed systems. On July 13, 2001 Delphi filed in this proceeding, Ex Parte Comments of Delphi Automotive Systems Corporation ("Delphi's Ex Parte Comments").³ Delphi attached to Delphi's Ex Parte Comments a detailed engineering study (the "*Study*") prepared by Delphi's engineering staff, which clearly and indisputably supported Delphi's position that the Commission should permit vehicular radar utilizing the PN DS BPSK non-pulsed waveform to the same extent as vehicular radar using pulsed systems. As Delphi explained in Delphi's Ex Parte Comments, the Study established, among other things, the following:

- Pulsed waveforms and the PN DS BPSK signal employed by Delphi are virtually identical in the frequency domain.
- The PN DS BPSK signal is as close to thermal noise in physical properties as has been invented, and is more noise-like than proposed pulse type signals.
- Due to its noise-like properties, the interference risk presented by the PN

³ In addition, on September 12, 2000, and October 12, 2000, Delphi submitted its "*Comments*" and "*Reply Comments*", respectively, with respect to the issues raised in the Commission's *Notice of Proposed Rule Making*, ET Docket 98-153, FCC 00-163 (rel. May 11, 2000) ("*Notice*") in this docket.

DS BPSK signal to existing receivers is no greater than, and ordinarily will be less than, the interference risk presented by proposed pulsed type signals.

- The impact of PN-DS-BPSK radar signals on government receivers will be unmeasureable in a practical sense.
- The use of the PN DS BPSK signal in the automotive radar context further mitigates interference risks due to the fact that automotive radar applications operate near the ground.

Accordingly, at least as to the vehicular radar utilizing the PN DS BPSK non-pulsed waveform, MSSI is wrong when it claims that there is no support in the record for the inclusion of any non-pulse systems in this proceeding.

Equally erroneous -- at least as to vehicular radar utilizing the PN DS BPSK non-pulsed waveform -- is MSSI's second allegation, that the record is "inconsistent" with permitting any non-pulsed devices to be covered by UWB. With regard to vehicular radar utilizing the PN DS BPSK non-pulsed waveform, the exact opposite is true. Not only is the record consistent with the Commission's decision, the record is devoid of any material facts to the contrary. Neither, MSSI nor any other party has filed any comments -- nor could they -- citing any data rebutting the undisputable conclusion, proven in the Study, that pulsed waveforms and the PN DS BPSK employed by Delphi are virtually identical in the frequency domain. Similarly, neither MSSI nor any other party has filed any comments -- nor could they -- citing any data rebutting the undisputable conclusion, also proven in the Study, that the PN DS BPSK is as close to thermal noise in physical properties as has been invented, and is more noise-like than proposed pulse type signals. In addition, neither MSSI nor any other party has filed any comments -- nor could they -- citing any data rebutting the undisputable conclusion, once again proven in the Study, that due to its noise-like properties, the interference risk presented by the PN DS BPSK

signal to existing receivers is no greater than, and ordinarily will be less than, the interference risk presented by proposed pulsed type signals. In fact, neither MSSSI nor any other party has filed any comments -- nor could they -- citing any data rebutting the undisputable conclusions set forth in the Study. That is because the Study is correct, and the Commission's findings consistent with the Study are fully consistent with the record. MSSSI's claims to the contrary, at least to the extent its allegations relate to the PN DS BPSK waveform, have no merit.⁴

MSSSI also claims that there was no opportunity to comment on, or to test, such non-pulsed devices, in the proceeding. Once again, the facts do not support MSSSI's position, at least as it relates to the PN DS BPSK signal. MSSSI could have filed comments at any time during the proceeding, including ex parte comments opposing Delphi's Ex Parte Comments, with regard to the PN DS BPSK signal, but MSSSI never did. If MSSSI wanted to perform tests relating to the PN DS BPSK signal they certainly could have. But MSSSI never did. To claim that the Commission should reverse its decision -- as least as to the PN DS BPSK signal -- because MSSSI did not have an opportunity to comment or test such devices is baseless.⁵

⁴ MSSSI's comment that no test results were submitted into the record for other than pulsed emissions conveniently ignores that as to the PN DS BPSK signal, the identical nature of pulse and PN DS BPSK power spectral densities associates pulse data with the PN DS BPSK waveform. Moreover, MSSSI could have either done its own testing or sought to dispute the data from the Study. Instead, it did neither.

⁵ MSSSI is also incorrect with regard to its statements that pulse devices are not modulation dependent. All radiating devices, regardless of waveform, have emissions whose bandwidth are directly dependent on modulation.

II. The Circumstances under which the Commission Ruled on the Vehicular Radar Issues, Including NTIA's Involvement, Also Support Delphi's Position

The circumstances in which the Commission reached its decision also dictate that the Commission's decision as to Delphi is correct. To say the least, the Commission's decision was not hastily reached. The Commission had four years to consider and study the issues involved, and the Commission spent tremendous time considering the issues. Moreover, NTIA also spent four years studying the issues, and there is no doubt that NTIA examined the issues relating to vehicular radar very closely because of its concerns relating to, among other things, radio astronomy. In fact, shortly before the Commission's rulings NTIA indicated to Delphi and the other members of the SARA group that NTIA was examining the vehicular radar issues extremely closely to ensure that NTIA was satisfied that there would not be unacceptable interference from such devices. This extensive examination by the FCC and NTIA led to vehicular radar rules that are agreeable to all parties. Needless to say, given the extensive evaluation by NTIA of the vehicular radar issues, it would not have given its blessing to vehicular radar utilizing the PN DS BPSK non-pulsed waveform if NTIA had a concern.

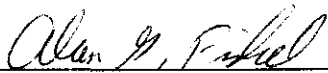
As the foregoing establishes, the issues relating to the PN DS BPSK waveform for vehicular radar have been fully considered and substantively settled by the Commission. To the extent that MSSSI is requesting the Commission to reconsider its well-thought out, substantively correct, ruling with respect to the PN DS BPSK signal, the Commission should reject MSSSI's contention. MSSSI's position, based on no new facts, simply does not justify any reconsideration relating to the PN DS BPSK waveform for vehicular radar.

III. Conclusion

For the reasons set forth herein, the Commission should deny MSSI's requests in Section V of MSSI's Petition for Reconsideration, at least to the extent that MSSI's requests would impact upon Dephi, including MSSI's attempt to seek reversal of the Commission's rulings in this proceeding relating to use of the PN DS BPSK non-pulsed waveform for vehicular radar as UWB.

Respectfully submitted,

DELPHI AUTOMOTIVE SYSTEMS CORPORATION

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Its Attorneys

Dated: July 31, 2002

CERTIFICATE OF SERVICE

I, Alan Fishel, an attorney in the law firm of Arent, Fox, Kintner, Plotkin & Kahn, PLLC, hereby certify that I have on this 31st day of July, 2002, caused to be sent by First Class United States mail, postage prepaid, a copy of the foregoing "**OPPOSITION TO MULTISPECTRAL SOLUTION, INC'S PETITION FOR RECONSIDERATION**" to the following:

Robert J. Fontana, President
Multispectral Solutions, Inc.
20300 Century Boulevard
Germantown, MD 20874-1132



Alan G. Fishel